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Exploring the Relationships Between Autism Parent Training and Fathers' Parental Involvement

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Abstract

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MS, Springfield College, 2004

BS, University of Wisconsin, Milwaukee, 1992

Dissertation Submitted in Partial Fulfillment

of the Requirements for the Degree of

Doctor of Philosophy

General Education Psychology

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Abstract

As the prevalence of autism spectrum disorder (ASD) in American children has increased over the past decade, many local and state agencies are seeking avenues to become more efficient in the type of training services they offer. One such training is referred as Autism Parent Training (APT). The purpose of this study is to explore the relationship between fathers' participation in APT and the factors related to involvement with their children prior to training and after attending training. This study relied on the developmental learning perspective as a theoretical framework, which asserts that the experience a person has in his/her life can contribute to defining one's parenting style. The focus of this study was a group of 42 fathers who have children with ASD and who attended APT class. The Fathers of Children with Developmental Challenges scale was used to evaluate the fathers with regards to their feelings of stress, coping strategies for stress, ideas about responsibility, and ability to be involved. The group was evaluated prior to the training period, immediately after the end of the training, and 30 days after the training period. A one-way ANOVA with repeated measures and a paired *t* test were conducted to compare changes in performance across time for each of the dependent variables. The study did not produce a significant effect as the sample size was too small. The study was modified from its original design due to COVID: face-to-face training and recruitment that was replaced by online training and recruitment. If the study could have been completed in its original format, the result could have been significantly different. This study highlights the gap in knowledge regarding support for father involvement and children with ASD, a critical area for positive social change.

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Chapter 1: Introduction to the Study

Introduction

As the prevalence of autism spectrum disorders (ASD) in Americans has increased from 1 in 59 in 2014 to 1 in 44 in 202021 (Centers for Disease Control [CDC], 2022), agencies have been seeking means to become more efficient in the type of services offered, attempting to ensure that families are more involved in implementing these services. The implementation of empirically supported treatments (ESTs) or evidence-based treatment strategies (ETS), such as discrete trail training, auditory integration training, applied behavior analysis training, and caregiver-based intervention training has become a norm in autism-specific services. This has increased the need for parental participation in autism parent training (APT) to enable them to learn ways to implement these strategies (Steiner et al., 2012).

Laxman (2015) analyzed data on 50 children with ASD and found that their mothers reported fewer depressive symptoms when their fathers were more willing to participate in caregiving activities. This suggests that greater involvement by fathers in terms of participation in the caregiving of an autistic child may, in turn, be beneficial for the mother's well-being and promote positive developmental outcomes for their child. Researchers have concluded that fathers' participation in autism treatment may help lessen the stress and burden placed on mothers, who generally take on the role of primary caregivers (Steiner et al., 2012).

Steiner et al. (2012) suggested that both mothers and fathers may suffer from mental health related issues as a result of the high level of stress from the caregiving responsibility of an autistic child. They further stated that such family dynamics should

be considered when developing parent education programs. Owing to the impact of implementing behavioral interventions and other treatment protocols, parents with children diagnosed with ASD are more likely to experience increased stress compared to their counterparts with typically developing children, especially mothers (Darling et al., 2012). Research examining fathers' participation in autism training also concluded that mothers from families where the father is involved feel that fathers' involvement in training improved their children's behavioral problems compared to when they were uninvolved or absent (Bagner, 2013).

As fathers' involvement in the life of their children is often important, I aimed to gain a deeper understanding of the relationships between APT and fathers' involvement with their children. Autism is known to affect people from all socioeconomic backgrounds and races (Autism Speaks, 2016). ASD affects 1 in 58 children, specifically 1 in 42 boys, as boys are diagnosed with autism four times more often than girls (Autism Speaks, 2018). The remainder of this chapter includes the background of APT and fathers' involvement, the problem statement regarding fathers' involvement and the need for fathers to increase participation in APT, and the purpose of the study to explore the relationship between APT and the factors regarding fathers' involvement. This chapter also discusses the significance of the study in terms of contributing to the research regarding fathers' involvement, the theoretical framework of the social learning theory, the nature of the study, and a summary.

Background

According to the Autism Division (AD) records of the region of the southeastern U.S under study, less than 20% of fathers whose children received a diagnosis of autism

from AD attended the state-sponsored APT. While these data may offer some insight into the low rate of fathers' participation in APT, there are no specific national or state data on fathers' participation in APT. Bagner (2013) asserted that traditional studies on parent training fail to include fathers' involvement. However, AD (2016) records concluded that within a 12-month period, only 11 fathers attended its training compared to 153 mothers. The difference in participation between fathers and mothers was striking.

The findings from a recent government report (CDC, 2014) suggested a rise in the rate of children diagnosed with ASD. The questionnaire findings suggested that 1 in 59 children between the ages of 3 and 17 have been diagnosed with ASD. As the prevalence rates of ASD in American children have increased over the past few years, many local and state agencies are seeking avenues to become more efficient in the type of training services they offer in order to ensure that families are more involved in using and implementing these services, which could lead to a reduction in the rate of ASD.

Problem Statement

Several ESTs or ETSs are presently a standard part of ASD services. They include sample interventions such as discrete trail training, auditory integration training, applied behavior analysis training, and care-giver-based intervention training (Tolin et al., 2015). Within these models, APT is an important part for their effectiveness (Steiner et al., 2012). In support of father participation in APT, Laxman (2015) conducted research with 50 children with ASD and found that the mothers of these children reported less depressive symptoms when the fathers were more willing to participate in caregiving activities. This finding suggests that increased involvement by fathers through active participation in the caregiving of autistic children may, in turn, lead to benefits for the

child's as well as the mother's overall well-being. Some researchers concluded that a father's participation in autism treatment may help lessen the stress and burden placed on mothers who generally assume the role of primary caregivers (Steiner et al., 2012).

Steiner et al. (2012) further suggested that mothers might experience mental health-related issues due to high level of stress owing to the primary responsibility for the care of a child with autism. It is suggested that family dynamics be considered when developing parent education programs. A study examining fathers' participation in autism training also concluded that mothers from father-involved families report that the father's involvement in training improved the child (ren)'s behavioral problems compared to families with uninvolved fathers and/or absent fathers (Bagner, 2013).

Purpose

The purpose of this study was to evaluate the effects of APT training on father involvement behavior as well as affective and attitudinal factors that may be related to involvement behaviors. A repeated measures design was used to evaluate the dependent variables among a group of fathers who attend APT training. In order to evaluate possible changes across time, the fathers were evaluated prior to the beginning of the training, at the end of the training, and 30 days after training ended. Using the Fathers of Children with Developmental Challenge Questionnaire (FCDCQ; Ly & Goldberg, 2014) scale, I assessed four critical factors to rate fathers' involvement: overall feelings of stress, coping strategies for dealing with stress, ability to be involved with their children, and ideas about being responsible for the care of their children. The goal was to evaluate the effects of the training program across these behavioral, affective, and attitudinal components of father involvement. The results provided valuable information concerning

the overall effectiveness of the training as well as the effects on specific cognitive-affective-behavioral components of father involvement.

Theoretical Framework

The social learning theory (Bandura, 1963) suggests that learning and social behavior are interconnected variables developed through observation and imitation. This theory hypothesizes that learning can be produced through direct instruction and without reward or compensation; however, rewards and compensation can be motivators in learning (Bandura, 1963). The social learning theory hypothesizes that observational learning can also take place but with reinforcement that is ongoing and consistent. Like other behavioral theories, this theory asserts that learning can be achieved using rewards; at the same time, it also emphasizes the importance of the internal variables in the learning process. Bandura's (1963) theory further suggests that the integration of observational and the internal factors of learning provide a broader narrative of learning. The primary hypothesis of this theory is as follows:

- The learning process is not purely observational but has internal factors integrated in a real-life format.
- The learning process can be manifested via behavioral observation and the reinforcement of behaviors.
- The learning process is based on decisions made after observing behaviors.
- The learning process requires reinforcement; however, reinforcement is only a part of the process.

The social learning theory also asserts that one's behavior is determined by environmental factors and it in turn has an effect on the environment. Bandura (1963) referred to this as the concept of reciprocal determinism. In essence, a person tends to reinforce with others in their environment the behaviors that are reinforced to them. This leads to an increase in the interaction between one's environment and personal behaviors. Moreover, the social learning theory suggests that live, verbal and symbolic modeling plays a major role in learning. Bandura asserted that observation and modeling produces cognitive and behavioral responses that include the following key elements for social learning: (a) the ability to be attentive to instruction, (b) to retain the information being taught, (c) to reproduce that information, and (d) to have the motivation to learn (Bandura, 1963).

Research Questions

I investigated the following questions to evaluate changes across time among the fathers of children with ASD who attended APT training:

RQ1: Are there changes in a father's stress because of participation in APT?

$H_0$1: A father's stress, as measured by the stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT.

H_a1: A father's stress, as measured by the stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does change because of his participation in APT.

RQ2: Are there changes in a father's coping strategies for stress because of his participation in APT?

H_0*2*: A father's coping strategies for stress, as measured by the coping strategies for stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT.

H_a*2*: A father's coping strategies for stress, as measured by the coping strategies for stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does change because of his participation in APT.

RQ3: Are there changes in a father's ideas about responsibility because of his participation in APT?

$H_0$3: A father's idea about responsibility, as measured by the ideas about responsibility of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT.

H_a3: A father's idea about responsibility, as measured by the ideas about responsibility of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does change because of his participation in APT.

RQ4: Are there changes in a father's ability to be involved because of his participation in APT?

$H_0$4: A father's ability to be involved, as measured by the Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT.

H_a4: A father's ability to be involved, as measured by the Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does change because of his participation in APT.

Nature of the Study

I assessed the research questions through a quantitative approach with a within-subject (time of assessment) comparison of scores reported at different points (pre, post, and post post). I explored differences across time in father's self-reported stress levels, coping ability with stress, sense of responsibility, and ability to be involved (FCDDQ; Ly & Goldberg, 2014).

Responses to all the subscales were collected thrice: prior to the APT training, at the end of the training, and 30 days after the end of the training. Then, the research hypotheses were assessed using repeated ANOVA. The findings of this study were expected to offer insight about the experiences of fathers and further knowledge about the specific benefits of APT training in affecting a father's involvement with his child(ren) with ASD.

Definitions

Autism spectrum disorder: A neuro-developmental disorder that affects language, social and cognitive development, which tends to have an early childhood onset (CDC, 2018).

Parental ideas of responsibility: Defined as parents' beliefs about their role in ensuring that their children have the basic needs that are required to be taken care of (Lamb et al., 1987; Pleck & Masciadrelli, 2007; Pleck, 2010).

Parental involvement: Defined as parents' face involvement with their children in daily living activities (Pleck, 2010).

Parental strategies: Strategies to cope with stress are defined by Lazarus and Folkman (1984) as behavioral inventions of cognitive or emotional nature that can reduce stress.

Parental stress: Defined as stress that parents experience resulting from their inability to address the expectation or needs of their children (Kirby Deater-Deckard et al., 2017).

Parent training: Referred in some research circles as behavioral training for parents to treat their children's aberrant or disruptive behaviors (Bearss et al., 2015). With respect to this study, the term APT referred to parents' training that promotes the acquisition of skill or behavior change in the child and the parent.

Assumptions

For the purpose of this research, it was assumed that parents understood the questions and responded honestly. I assumed that the parents possessed sufficient self-awareness to answer the questions reliably and were sufficiently motivated to complete the training and all other aspects of the study. It was assumed that the training program and the measurement instruments were reliable and valid, therefore providing sufficient internal validity for the study.

Scope and Delimitations

This study was focused on fathers and their involvement with their child(ren) with ASD. The sample belonged to a region of the southeastern U.S. and their children were eligible for state-funded autism services. Part of these services involve APT designed to suggest parental strategies that help in dealing with increased parental involvement and the reduction of stress through the implementation of applied behavior analysis (ABA)

techniques. The research sample comprised 22 fathers; the FCDCQ (Ly & Goldberg, 2014), a closed-ended Likert scale response questionnaire was used as the data collection method. This was the only measure used in the study, which captured data at three points during the study as stated earlier, which enhanced the validity of the data. The literature regarding father involvement is replete with studies that suggest the need for increased father involvement; this study could encourage future studies on this subject.

This study was delimited to a group of fathers, from a region of the southeast U.S., who had children with ASD. The data collected through the FCDCQ (Ly & Goldberg, 2014) provided information regarding four critical factors that could affect fathers' involvement with their children after participating in APT. The factors included fathers' overall feelings and coping strategies for dealing with stress, the ability to be involved with their children, and ideas for being responsible for the care of their children.

Limitations

The limitations of the study were that a repeated measures design could lead to dropouts, which could then affect the final sample size. Beyond the treatment, time constraints or personal issues could also affect whether participants returned the questionnaire in a timely manner; this could affect the post-treatment scores.

Methodological weaknesses could stem from the use of only one measure with several robust subscales and the possibility of unrecognized confounding variables that could not be evaluated without a no-treatment control group. Biases could have influenced the study outcomes if the participants were familiar with me or were previously trained by me. I ensured this by only recruiting fathers unfamiliar with the

researcher. Additionally, the services of regional disability agencies were availed in the recruitment of fathers to ensure an adequate number of participants.

Significance

The study could contribute to the professional literature by exploring the relationship between APT and factors related to father involvement. It could also contribute to the present research by gaining further insight into a father's experience in relation to raising a child with ASD. Steiner et al. (2012) suggested that parents' participation in autism training is an essential part of most comprehensive behavioral intervention programs. Perhaps mothers have been the focus of numerous studies because they are the ones who show up for treatment; therefore, service providers tends to concentrate on them for the implementation of the important treatment strategies (Flippin & Crais, 2011). Due to this reason, the focus on fathers could add to the existing body of knowledge on a father's participation in ASD treatment and can be a catalyst for future studies concerning a father's involvement in APT and treatment. From an application standpoint, this study produced data that may lead to the creation of effective service protocols for increasing a father's involvement by collecting information about critical factors that could help explain the general impact of APT on fathers who have attended APT.

Summary

As the prevalence rates of ASD in Americans have increased from 1–150 in 2000 to 1–68 in 2010 (CDC, 2015), agencies have been seeking means to become more efficient in the type of services offered and are ensuring families' increased involvement in implementing these services. Fathers' involvement has become an important topic in

psychological and behavioral research. The proposed study aimed to gain a deeper understanding of the relationship between APT and fathers' involvement. Some researchers concluded that fathers' participation in autism treatment may help lessen the stress and burden placed on both parents, especially mothers who generally take on the role of primary caregivers (Steiner et al., 2012). The social learning theory formed the theoretical framework of this study; the theory suggests that learning and social behavior are inter-connected variables developed through observation and imitation.

The social learning theory by Bandura (1963) hypothesizes that learning can be produced through direct instruction and without reward or compensation. The number of participants and the number of measures used to collect data could have also been a limitation. However, the FCDC, a closed-ended Likert scale, captured data at three points during the study, before the training, after the training, and 30 days after training, which enhanced the validity of the data. The result of this study could contribute to present research by offering further insight into fathers' involvement, especially with regard to children with autism.

Chapter 2 is focused on the review of literature, parental involvement in APT, parental stress, and fathers' involvement issues. Chapter 3 is an explanation of the methodology that was used for this study.

Chapter 2: Literature Review

Introduction

I aimed to identify if there was any relationship between participation in APT and a father's involvement with his children with autism. The results of the study could contribute to the present research by offering further insight regarding a father's involvement. Data gathered through the FCDCQ (Ly & Goldberg, 2014) provide data on the four critical factors that could affect father's involvement with their children after participating in APT. These factors consist of fathers' overall feeling and coping strategies for dealing with stress, fathers' ability to be involved, and fathers' idea about responsibility. These factors could explain the general relationships between fathers' participation APT and their experiences with their children after attending training. The FCDC was used in a recent study conducted by Bloom, 2015. The Cronbach's Alpha for the total score on the FCDCQ for this study was 0.80.

Literature Search Strategies

The literature review identified articles related to fathers' participation in APT. The search strategy was to search all published articles from various websites and books that featured random trials, medical journals, university and independent scholars, and researchers that focused on the questions of parent training, maternal stress, and fathers' involvement. The literature review came mostly from a concerted search of a host of online databases that included the National Institutes of Health (NIH), the U.S. National Library of Medicine online, Cochrane, Walden University Library, and the University of South Carolina Library. Using key words or phrases such as *autism spectrum disorder, father involvement, maternal stress,* and *parent training*. I searched online databases that

produced a number of references and bibliographies, which allowed the exploration of eligible studies on these topics. PubMed, with a database of tens of millions of articles, provided 45 articles, which was searched with the terms parent training, maternal stress, and fathers' involvement.

A few articles focused on parent training interventions for children with ASD. The review of literature on parent training intervention listed 23 articles that relate to parent training as defined by the proposed study. The primary ideas taken from the review were that parent training is beneficial and that parents were able to implement strategies taught in the training programs. However, Beaudoin and Couture (2014) suggested that parent training findings from a number of studies that related to actual social communication skills development, parents' interaction with their children, or parental wellbeing need further clarity to be conclusive.

In terms of maternal stress, I researched over 53 articles and the overall findings suggested that the implementation of programs designed for children with ASD that include parent training and family support seem to reduce problem behaviors and may contribute to reduce maternal stress. Hewitson et al. (2016) asserted that the development and implementation of autism-specific programs that encompass a number of family supports for parents and children were imperative and critical to reducing maternal stress and improving child developmental outcomes.

The review of literature regarding father involvement revealed articles that focus on a father's involvement as a means to produce positive outcomes for their children's health and their families' well-being. The review of literature relating to fathers' involvement included 30 articles that focus on factors that may increase fathers' level of

involvement. Fathers of children with ASD seem to be no less involved than other fathers but because of the difficult task parents undertake when raising a child with ASD, the lack of father's involvement can lead to increase in stress and burden on mothers. Johnson and Simpson (2013) asserted that a father's involvement with children with ASD is paramount to their families' wellbeing. Therefore, health care providers should be aware of how maternal stress and family dynamics affect the functioning of families, especially in terms of a father's involvement in treatment decision-making.

Theoretical Framework

The social learning theory suggests that learning and social behavior are inter-connected variables developed through observation and imitation. This theory hypothesizes that learning through direct instruction and without reward or compensation is possible; however, rewards and compensation can be motivators in learning (Bandura, 1963). This theory hypothesizes that observational learning can also occur but providing reinforcement that is ongoing and consistent is important. Similar to the behavioral theories, the social learning theory asserts that learning can be without rewards but places emphasis on the importance of the internal variables in the learning process. Bandura's (1963) social learning theory also suggests that the integration of the observational and internal factors of learning provide a broader narrative of learning. The main hypothesis of the social learning theory is as follows:

1. The learning process is not purely observational but also has internal factors integrated in a real-life format.
2. The learning process is manifested via behavioral observation and the reinforcement of behaviors.

3. The learning process is based on decisions made after observing behaviors.
4. The learning process requires reinforcement; however, reinforcement is only a part of the process.

The social learning theory also asserts that one's behavior is determined by environmental factors and in turns affects the environment. Bandura refers to this as the concept of reciprocal determinism (Bandura, 1963). In essence, a person tends to reinforce with others in their environment the behaviors that are reinforced to them. This leads to an increase in interaction between one's environment and one's personal behaviors. Social learning theory suggests that live, verbal, and symbolic modeling plays a major role in learning (Bandura, 1963). Bandura asserted that observation and modeling produce cognitive and behavioral responses that include the ability to be attentive to instruction, retaining the information being taught, reproducing that information, and having the motivation to learn, which are the key elements for social learning (Bandura,1977).

Literature Review Related to Variables and Key Concepts

The prevalence rates of ASD among Americans have increased from 1–150 in 2000 to 1–68 in 2010 and 1–59 in 2018 (CDC, 2018). ASD affects all racial, ethnic, and socioeconomic groups. In terms of gender, ASD affects males almost five times more than females. Globally, Asia, Europe, and North America have similar rates of ASD.

Presently, there is only one diagnostic designation of ASD. In the past, Asperger's syndrome and ASD were considered separate disorders but with the introduction of the latest edition of the manual from the American Psychiatric Association, the Diagnostic

and Statistical Manual of Mental Disorders (DSM-5), there are no distinctions or subcategories listed (National Institute of Mental Health, 2016). According to the CDC, ASD is considered a developmental disability with no known cause. It affects the brain primarily, which causes differences in the way most people with ASD behave and, in some cases, there is a genetic link. It is important to note that parents of children with an ASD report developmental issues within 12 months after birth and the vast majority report development issues when the child is around 2 years old. The DSM-5 seeks information in two distinct areas: communication and social interactions and usual interest and repetitive behaviors.

In terms of communication and social interactions, persons with ASD exhibit a spectrum of language skills. Most people with ASD have verbal language skills but nearly exhibit no speech at all. Socially, a person with an ASD does not tend to seek social interactions or have an understanding of social relationships. Moreover, people with ASD tend to have difficulty displaying feelings or clearly interpreting the feelings of others, which are important attributes in making friendships.

According to the CDC (2015), people with ASD have unusual interests, which could appear odd or weird to others. Some people with ASD might be interested in things such as traffic lights, drainpipes, collecting sticks or rocks, with no clear intentions behind the action. Repetitive behaviors such as body motions may include hand-flapping, body rocking, turning a light on and off repeatedly, or spinning in circles. These types of behaviors are termed as self-stimulation or stereotypical behaviors. Repetition in daily routines is essential for most people with ASD and making transitions can cause behavioral outbursts and meltdowns. Finally, people with ASD suffer from sensory

processing issues regarding responses to touch, smell, sounds, sights, taste, and sensation; therefore, some people with ASD may have a high tolerance for pain while others may avoid being touched.

The CDC (2016) suggested that early diagnosis and intervention is crucial to improve the developmental outcomes for persons suffering from ASD. Once a diagnosis of ASD has been made and early interventions are in place, it is imperative that parents are trained regarding the causation and behavioral characteristics of ASD so they can understand and implement behavioral strategies (CDC, 2017).

The review of literature clarifies the importance of training for parents of children with ASD as a part of early intervention services. Mothers usually take on the bulk of the tasks relating to the implementation of ASD treatment strategies and that fathers need to be more involved in ASD treatment. Bagner (2013) asserted that traditional studies on parent training fail to include fathers' involvement. However, parents can provide more consistent treatment interventions for their children than service providers, as parents spend more time, overall, with their children (Steiner et al., 2012). Parental involvement can have a positive effect on autistic children, especially if it occurs during early years of development (Schultz, 2013). For example, some autistic toddlers demonstrated a significant improvement in communication skills after an intensive intervention by parents than after treatment by clinicians (Wetherby et al., 2014). Even though for years researchers have concluded that parent intervention can benefit autism treatment (Schultz, 2013), only recently the first randomized controlled trial study was conducted. Schults assessed the concept of group training for parents and found that parents can learn concepts of intervention and that they can implement these interventions with their

children (Hardan et al., 2014). A review of17) studies from several countries (USA, UK, Australia, Canada, Thailand, and China) found that parent-mediated interventions should be prioritized when developing intervention programs (Oono et al., 2013). Emory Health Sciences (2015) also found that providing parents behavioral strategy training assists them with managing serious behavioral problems better and that the benefit of parent-mediated intervention might continue to be evident months after the intervention. Frank et al. (2015) explored the outcomes of parenting programs that implemented processes to encourage father engagement. A marked difference was observed in the means in which parents communicate, with fathers tending to use more humor when engaging with others and mothers sharing more feelings when presenting to the group. The finding concluded that the parent's participation in the session might benefit from being trained simultaneously. The University Of North Carolina School Of Medicine (2015) concluded that families with a 1-year-old child at risk for ASD, who were trained in the home-based intervention called Adapted Responsive Teaching (ART), seemed to produce a better outcome than the families referred to early intervention and monitoring.

Bearss et al. (2015) asserted that parent training could be used to address a number of autism treatment interventions from treatments for language to treatment to deal with aberrant behaviors. Results from a study regarding parent training when used as a treatment demonstrated a significant decrease in aberrant behaviors in children with ASDdisruptive, explosive, and noncompliant behaviors (Bearss et al., 2013). Steiner et al. (2012) suggested that parents' participation in autism training is an essential part of most comprehensive behavioral intervention programs. Steiner et al. also concluded that

fathers' participation in autism treatment might help lessen the stress and burden placed on mothers who generally take on the role of primary caregivers.

A recent study regarding fathers' participation in autism parent training concluded that mothers from families with involved fathers felt that father involvement in training improved child behavior problems, as compared to those with uninvolved fathers and absent fathers (Bagner, 2013). In further support of parent training, Estes et al. (2015) discussed the long-term outcomes of children who received early intensive autism intervention. They found that improvement of intellectual ability and reduction in autism symptoms remained consistent over several years. The treatment involved therapists and fathers working together in the homes with the child for several hours weekly. The findings from this study revealed that the child and family variables significantly predicted family involvement and the parent–teacher relationship. The findings on child factors indicated that parents of children with higher developmental risk reported less family involvement and poorer relationships with their child's teacher.

The findings from a recent study of parents with at-risk children found that parent training can be used to improve behavioral issues, but it also suggested that further research was required to render the results conclusive (Barlow et al., 2016). Furlong et al. (2012) found that group-based parenting interventions were a means for agencies to provide cost-effective interventions that can remedy children's behaviors and improve parents' mental well-being. A research involving 48 different studies with 4937 participants concluded that group-based parent training reduces parents' level of depression and suggested that such programs should be used to improve parents' mental health (Barlow et al., 2014). Murphy and Zlomke (2016) concluded that parent-mediated

behavioral intervention was also used to facilitate outpatient children suffering from avoidant/restrictive food intake disorder. After the parents received parent training, their children were successful in avoiding negative mealtime behaviors.

Researchers suggested that parent training for those taking care of children with ASD could reduce service cost. Such trainings may be conducted in a number of settings, and they tend to focus on parent-mediated interventions (Bearss et al., 2015). However, in a country such as Tanzania, service disparities, in terms of treating those with ASD, are appalling, but parents have learned to provide parent–mediated interventions to assist in combating aberrant behaviors (Harrison et al., 2016). Scourfield and Nasiruddin (2015) found that mixing parent training with religious values could enhance fathers' participation in parent training. They also observed that the needs of some British Muslims to incorporate religion into intervention programs might present a viable means to increase fathers' involvement in parent training.

Reduction of Maternal Stress

Steiner et al. (2012) suggested that parents' participation in training is imperative, as in most comprehensive intervention programs, parents may suffer from mental health-related issues because of their high level of stress and that the researcher needs to more appropriately address these issues; family dynamics should be considered when developing a parent education program. Steiner et al. also asserted that fathers' participation in autism treatment might help lessen the stress and burden placed on mothers. Dabrowska and Pisula (2010) stated that mothers tend to be the primary caregivers of children with developmental disabilities; hence, fathers may not deal with high-level stress in comparison to mothers. Bluth et al. (2013) indicated that fathers of

children with ASD may suffer from an increased level of stress if co-parenting is practiced with a partner who suffers from a high level of stress or has other mental health issues. Schaidle and Burnson (2013) assessed mothers and fathers' self-reporting of parental attributions, parenting burden, and child behavior problems. Couples reported on the level of severity of their children's autism symptoms. Fathers were more likely to attribute the behavior problems of their child/adolescent with an ASD to internal and controllable behaviors that may not necessarily be associated with their autism.

Mothers were more likely to attribute their children's behaviors to less internal factors than the fathers. Mothers tended to feel that most of their children's behaviors were controllable, which may suggest why mothers tend to be more involved in the treatment or they feel that there are interventions for controlling their child's behaviors. Laxman (2015) conducted research on 50 children with ASD and found that the mothers of these children reported less depressive symptoms when the fathers were more willing to participate in caregiving activities. Jones et al. (2013) suggested that further studies are required to help explain these gender differences in terms of levels of stress in order to find an intervention that addresses the mental health of parents caring for children with autism. However, a comparison of the stress index of mothers and fathers raising children with ASD found that mothers had significantly more stress than fathers (Soltanifar et al., 2015). These findings indicated that the mental state of parents with ASD children must be considered in the development of effective treatment strategies for their children. In further support of this, Jones et al. assessed a multilevel modeling approach that addressed the need for service providers to become aware of potentially elevated distress

profiles in mothers and the need to create clinical interventions that target improving maternal well-being and reducing psychological distress.

Researchers using early and intensive behavioral intervention (EIBI) have shown that both parents tend to express elevated stress levels at the beginning of the study, but only the mothers reported a lowering of stress after one year of treatment (Eikeseth et al., 2015). Tellegen and Sanders (2014) conducted a study that evaluated the effectiveness of stress reduction in parents with children suffering from ASD. Primary Care Stepping Stones Triple P, a behavioral intervention that allows parents to work on aberrant behavioral issues and social communication skills, was found to be effective in improving short-term parental stress. Dyadic coping strategies, which is a process of showing a sense of understanding for the experience of a spouse, was found to be a means to help families adjust to issues relating to chronic behavioral issues (Gouin et al., 2016). From a different cultural perspective, for instance, Asian, researchers asserted that parental involvement must be structured to ensure learning through hands-on experiences that create an environment which reinforce an optimistic thinking, so that skills learned can be transferred and adapted in their homes and so on (Chong & Kua, 2017). Kasari et al. (2015), who compared the effects of two parent-mediated interventions on joint engagement for toddlers with ASD, found that such interventions might be successful in reducing parental stress levels.

Maternal parental stress can be the result of many factors. Issues related to learning of her child's diagnosis with ASD, consistently dealing with crises, and being expected to implement interventions to her young child, as well as time lost from work, and increased medical costs associated with caring for a child with ASD can create

additional stress (Cidav et al., 2012). Economic issues may also exacerbate a mother's level of stress. A recent study highlighted that raising a child can cause financial hardships, especially for mothers, who work fewer hours and are paid less money. Moreover, the stress of dealing with the ASD diagnostic process can be an added burden for mothers, especially depending on the time that elapses between the first suspicion of ASD and the actual time when a diagnosis is received (Reed et al., 2016). Petrongolo (2014) further added that maternal post-traumatic stress was linked to raising children with ASD, and service providers should be cognizant of the associated higher stress levels that mothers may suffer from when caring for an autistic child.

Father's Involvement

I examined if factors related to the involvement of fathers of children with ASD change across time as a function of participation in APT. Researchers suggest that there may be several concerns that affect a father's abilities to raise a child with special needs and that there are limited community-based resources available to address these issues (Waldman et al., 2013). Roubinov et al. (2016) highlighted fathers' involvement in Mexican-origin families by measuring it (paternal engagement, accessibility, and responsibility) and found that Mexican-origin fathers' involvement was aligned with previous literature based on other ethnic groups. Frank et al. (2015) explored the outcomes of parenting programs that implemented processes to encourage fathers' engagement. A randomized control trial was conducted with a number of families with typically developing children aged between 3 to 8 years who exhibited behavioral issues. Recently, the relationship between father involvement relating to children with attention deficit hyperactivity deficit (ADHD) symptoms – and those who exhibited conduct

problems– was found to have a positive association with these children's behavior problems (Romirowsky & Chronis-Tuscano, 2014). These findings highlight the need for the father to be more willing to engage as a service provider in order to become more involved in his children's treatment.

Wetherby et al. (2014) found that toddlers diagnosed with autism demonstrated significant improvement after intensive intervention with fathers rather than clinicians, after the fathers were taught to be more involved in their child's learning. Semi-structured interviews with 28 fathers of children with (ASD indicated that fathers tend to prefer recreation-based support activities with their children and felt that support from other fathers who have been trained would be a means to increase fathers' involvement (Shave & Lashewicz, 2015). A systematic review of literature for the past 30 years found only three studies that reported that fathers participated in parent training (Elder et al., 2005; Rocha et al., 2007; Symon, 2005). These studies all identified the involvement of fathers in parent training for children with ASD (Flippin & Crais, 2011).

Consequently, a study regarding fathers' participation in autism parent training concluded that mothers from families with involved families felt that fathers' involvement improved child behavior problems (Bagner, 2013). Offering wide contrast, a recent study indicated that fathers of children suffering from life-threatening illnesses assume the primary personal caretaker roles for their children (Wolff et al., 2011). Moreover, fathers tended to be more willing to participate in caregiving when they were aware of the mother's state of depression or when the mother was less willing to be involved when the couples experienced marital problems. A recent study from China concluded that there was consistent deficit in fathers' involvement in families raising

children with ASD and that parental stress and fathers' involvement needed to be addressed to increase positive outcomes for their children (Hu et al., 2017). Allgood et al. (2012) studied father's involvement in the examination of their daughters' three emotional areas –self-esteem, life satisfaction, and psychological distress – and asserted that there were statistically significant relationships between engagement and accessibility and the daughters' self-esteem and life satisfaction. The study used a multiple regression which indicated that better psychological well-being and co-parenting relationship quality and lower conviction rates since the birth of the child were significantly associated with higher levels of paternal involvement. Estes et al. (2015) discussed the long-term outcomes of children who received early intensive autism intervention. They found that the improvement of intellectual ability and reduction in autism symptoms remained consistent over a number of years. The treatment involved therapists and fathers working together at home with the child for several hours weekly to ensure paternal involvement when controlling for statistically relevant sociodemographic variables. Coates and Phares (2014) stated that the positive attribute of fathers, especially those from lower social economic environment, should be the focus of research in the area of father involvement. Lindberg et al. (2017) found that father involvement appears to be negatively associated with children whose fathers had not planned for them or for those who were the result of unintended pregnancies.

Another example of the role of fathers was Ali and Dean's (2015) study which concluded those fathers' interventions, non-resident fathers, could be used to reduce cigarette smoking in adolescents. The study also indicated that fathers' involvement could establish supportive relations with the children (Murphey et al., 2014; Solomon-

Fears, 2014). Fathers' involvement in caregiving may shield their children from the exhibition of aberrant behaviors and may make a child more confident when interacting with their peers (Jia et al., 2012). Father's involvement does not seem to make a positive impact on children or families' processes in the case of cohabit-fathers, i.e., who live with the mothers but are not legally married. Children from cohabiting families reported cruel treatment by their fathers, which, researchers suggest might lead to the troubling behaviors associated with children living in these kind of family environments (Bachman et al., 2012). Nevertheless, when fathers involved prior to a child's birth, it is more likely that they will be involved post-birth and will usually create a positive relationship with the mothers of their children (Mallette et al., 2015). In the same vein, fathers' attachment with their children was found to be related to fathers' ability to spend quality time with their children, especially in their early childhood. The father-child attachment seems to sustain over the years (Brown et al., 2012).

The review of literature emerged to be consistent in terms of the benefit of the father's involvement in the child's early childhood. Early intervention is an important aspect in the treatment of autism. To get the father involved as early as possible is imperative for of training and treatment. A recent study suggested that fathers' sensitivity in parenting while a child is still a toddler may contribute to the development of a child's early executive functioning (EF) at 36 months (Towe-Goodman et al., 2014). Meuwissen and Englund (2016) suggested that fathers' involvement in the development of EF can have lasting effects that continue until third grade or age eight and that there must be a concerted effort to get fathers involved in intervention programs for at-risk youth. Such studies support the claim that fathers' involvement is extremely important for children

with ASD, as children with ASD may suffer from impaired executive functioning (Craig et al., 2016).

The study assessed the impact of fathers' participation in APT with respect to factors related to involvement with their children. A study that examined 199 publications investigating the presence of the father in parenting intervention programs found that most of these programs focused mostly on mother-child interactions and left out fathers' involvement. One of the barriers to fathers' involvement was that intervention programs are developed and administrated (Panter-Brick et al., 2014). Tully et al. (2017) asserted that only one out of six fathers actually participated in intervention programs dealing with children with high-level externalizing problems. Tully et al. (2017) that help-seeking attitudes may have been a barrier to fathers' participation. In a similar vein, researchers studying fathers' participation in pediatric research asserted that limited fathers' involvement in research may be the cause for researchers focusing primarily on mothers and simply overlooking the recruitment of fathers in their research (Davison et al., 2017). A study that explored research on childhood obesity offered similar conclusions. The research found that fathers represented only 6% of the parents in such studies while fathers' involvement was broadly limited in all the studies in this area (Morgan et al., 2017).

The following studies focused on father involvement as it is related to participation in APT. Lamb et al. (1985) defined father's involvement as consisting of engagement, i.e., of a fathers' direct interaction with their children, accessibility, that is, fathers making themselves available to their children, and responsibility, that is, fathers ensuring the care of their children by providing resources. The study explored father

involvement as it relates to APT via the construct defined above. Furthermore, this review of literature discusses the overall research on father involvement. However, a further review of literature relating to the constructs of engagement, accessibility, and responsibility has been conducted to provide a rigorous discussion of these constructs individually.

Engagement

Lamb et al. (1985) suggested that interaction/engagement implies the father spending quality time with his children, preferably participating in individualized interactions. In terms of engagement, researchers gathered information relating to father engagement from an analysis of the literature, which found that father engagement strategies can assist in preventing domestic violence when the father becomes increasingly involved in family activities (Pfitzner et al., 2017). The review of the literature indicated that fathers who live with their children tend to be more engaged in their lives but other factors such as education and race may also play a part in father's engagement (Jones & Mosher, 2015). Fagan and Cabrera (2012) suggested that the earlier a father becomes engaged in the lives of his children, the better the relationship can be between parents who are co-parenting. Fathers' engagement was found to have a lasting effect on children with school-based emotional-behavioral issues. The researchers assert that fathers' engagement had a positive influence on internalizing behavior scores of their children suffering emotional-behavioral issues at school (Bernard et al., 2015). A study conducted in the United Kingdom showed that fathers' engagement within the first year of the child's life, usually around the age of nine months, has lasting effects on the imaginative play at 60 months and may be instrumental in reducing future behavioral

issues. Furthermore, an association was found between fathers' engagement and their children's cognitive development, especially in early childhood. Therefore, researchers suggest that fathers' engagement should be an imperative part of early childhood programs and initiatives (Sethna et al., 2017). Moreover, Zvara et al. (2013) stated that fathers' involvement in their children's health care is closely associated with whether or not the father is engaged in treatment planning and if their children's mother is more willing to have the father participate in their children's medical care. However, Frye (2015) suggested that a number of issues may prevent fathers from being more engaged. Fathers reported barriers that ranged from economic issues to just not having sufficient time. Furthermore, fathers also reported feeling a sense of grief and loss after becoming aware of their child's ASD diagnosis. Pleck (2012) asserted that a major strength of the engagement construct is that it provides a measure of fathers' actual interaction with their children.

Accessibility

When defining accessibility, Lamb et al. (1987) insisted that accessibility involves fathers making them-selves available to their children from a physical and psychological perspective. Research on fathers' accessibility is extremely limited. However, a recent review of literature produced a significant study by Shannon et al. (2009), which discussed data received from 2,160 mothers from diverse backgrounds (European American, African American, and Latin American) regarding fathers' accessibility and asserted that fathers who are accessible before the birth of their children were more accessible on a regular basis during the formative years of their children's lives. Furthermore, fathers' accessibility has been positively correlated with the irregular

temperament of their children, especially when considering the time fathers are accessible when not at work (Brown et al., 2011). The accessibility of non-residential fathers was found to be mediated by whether or not mothers were involved in another intimate relationship. This suggests that mothers' intimate relationship patterns affect fathers' accessibility to their children (Kotila & Dush, 2012). Similarly, Aliol et al. (2013) reported that mothers identify accessibility to fathers as one of the ideals associated with fathers' involvement in the process of consistency in breastfeeding after birth. The first State of the World's Fathers report (2015) suggested that fathers' roles are changing and that fathers want to be more accessible to their children. Another recent research found that 50% of fathers feel that they need to have more quality interactions with their children (Feki et al., 2017).

Responsibility

Lamb et al. (1987) defined responsibility as fathers taking on the responsibility of the care of their children. This may include fathers also taking responsibility of the mothers' overall well-being. Unfortunately, fathers face difficulties becoming fully responsible for their children. Recent research indicated that a number of factors prevent fathers from taking a responsive role in their childrens lives. Zaveri et al. (2015) suggested that these obstacles could be issues related to a number of factors that can range from financial concerns to mental health issues and that almost 10% of children in the United States live in a home without fathers who assume responsibility. Moreover, the researcher mentioned that even low-income fathers who live outside of their children's residence are becoming more responsive to the needs of their children (Edin & Nelson, 2013).Fathers who participate in daily household duties, which include the

responsibilities involving their children's daily life, tend to build better communication systems with their wives (University of Missouri-Columbia, 2013). In the same vein, recent research has concluded that fathers must be more than just present in the household and that they must develop a strong and solid relationship with their children. The study further asserted that the father-child relationship may depend on a father's depressive state of mind and that social service providers should take the whole family in consideration when creating child development plans instead of focusing on mothers and children only. Burrell et al. (2017) studied the experiences of fathers who have children with ASD; they reported that fathers feel the need to be an advocate for their children and ensure that they received appropriate treatment. Moreover, a recent study asserted that even though fathers are taking on more child-rearing responsibilities, the majority of research on ASD continues to deal with the experiences of mothers (Cheuk & Lashewicz, 2016). Pleck (2012) suggested that the responsibility construct might be the most beneficial to the mother, as the more responsibility the father takes on, the less stress or depression a mother may experience.

The review of literature produced no studies that discuss father's involvement and ASD using the construct described by Lamb et al. (1985). This renders the proposed study unique in its design, as it can be beneficial to filling a gap in the literature regarding fathering and autism.

Fathers' Strategies for Coping With Stress

In response to the lack of research that examines the perception of fatherhood strategies for coping with stress, Dardas and Ahmad (2013b) conducted a study on the effects of coping strategies of fathers of children with ASD on their quality of life (QoL).

The study suggested that QoL of the fathers must be taken into account when creating treatment plans for children with ASD. In a later study, designing the care plans for their children. The study examined the factors that may predict QoL, such as household income, the age of the child with ASD, and whether there were other children in the home affected by ASD. However, none of the coping strategies were found to reduce fathers' stress–QoL among the 101 participating fathers. In an extremely significant study, researchers investigated how fathers of children with developmental disabilities coped with stress via sense of coherence (SOC). The research concluded that a relationship exists between the type of child's developmental disability and SOC in fathers. The results of the study clearly indicate that raising a child with a disability may lower a father's SOC, causing problems in coping with stress (Dabrowska, 2008). It was also found that parents of children with ASD tend to have issues with social diversion coping and emotion-oriented coping. The finding concludes that fathers who have children with ASD are unable to cope with stress (A., D., & E., P., 2010). A recent research conducted among first-time expectant fathers suggested that when the level of stress increases, coping strategies tend to decrease (Devi, 2016).

Fathers and Stress

With regard to fathers and stress, a recent study by May et al. (2015) showed that the quality of co-parenting has an effect on the stress level in fathers of children with ASD. The findings assert that co-parenting quality is clearly correlated with parenting stress in fathers of children with an ASD and that the quality mediates fathers' stress. Moreover, researchers have found a limited association of fathers' warmth and stress on child behavior problems. The study suggests that enhancing fathers' warmth may reduce

their level of stress, creating more positive outcomes for children with ASD. Moreover, the father-child relationship and the reduction in parenting stress may lead to positive outcomes for the children (Lee et al., 2017). Likewise, Knoester and Petts (2017) also found that father identity is a factor in paternal stress. The study showed that fathers develop a concrete role as a parent, which, in turn, may lead to more family interactions and a reduction in fathers' stress level. Another recent study examined fathers' parenting stress regarding their children in early childhood and found that fathers' parenting-related stress was associated with children's cognitive scores. Fathers with children who had lower cognitive scores tended to be more stressed. The study also suggested that fathers are more involved in the implementation of early childhood interventions (Hardwood et al., 2017)

Summary

Associations between fathers' involvement and child adjustment are definitive. There is overwhelming evidence of the overall benefit of parent training that supports father's involvement as being critical in a child's overall development. In terms of ASD, it is clear that fathers must be more involved in caregiving because of the preponderance of the literature asserting that mothers are over stressed, as they deal with the majority of the aberrant behaviors exhibited by children with ASD. Furthermore, it has been clearly established in the review of the literature that parent mediated intervention may provide parents with the techniques required to address problematic behaviors. The ability to apply these techniques at home with the assistance of a professional may correlate with a reduction of stress for the mother, especially when mothers are in a supportive

coparenting relationship. According to the literature review, parent training can also be a cost-effective means to treat ASD.

The review of literature highlighted the benefit of parent training on father involvement; however, no study clearly defined the effect of APT on father involvement in terms of level of fathers' stress, coping strategies, their ideas about father involvement, and their ideas about responsibility. In this regard, the present study fills a gap in the literature and provides new information regarding father involvement. Chapter 3 will present the proposed methodology for this study.

Chapter 3: Research Method

Introduction

The goal of the study was to identify the relationship between APT participation and factors related to fathers' involvement with their children with autism. The result of this study may offer further insight regarding training experiences that may increase fathers' involvement with their children by reducing stress and other possible barriers to involvement. The theoretical foundation for this study was the social learning theory by Bandura (1966). This theory describes learning processes by which individuals can develop social behavior patterns and would apply to parenting style. Data collected from close-ended questionnaire, the FCDCQ (Ly & Goldberg, 2014), provided information on the four critical factors that could affect fathers' involvement with their children: feeling of stress, coping strategies for stress, ideas about responsibility, and the ability to be involved. The design of this study consisted of the assessment of the experience of fathers at three points: prior to the beginning of APT, immediately following completion, and 30 days after completion. One-way ANOVAs with repeated measures evaluated change across the three points of measurement for each of the dependent variables.

Research Design and Rationale

I observed fathers of children with ASD who attended the APT on parenting in order to investigate possible changes across time related to their attendance. The training groups of fathers testing occurred just prior to beginning the parent training, at the end of the training period, and 30 days after to assess whether the training had an effect on the dependent variables of interest, which included fathers' overall feeling of stress, fathers'

coping strategies for stress, fathers' ideas about responsibility, and fathers' ability to be involved.

I had the choice to adapt the post-positivism worldwide philosophical view as it supports the quantitative research design employed in the study. According to Gratton and Jones (2010), postpositivism posits that proper understanding cannot be attained merely through measurement. Conversely, the use of traditional evaluation criteria, such as internal validity, statistical analysis, and computer-assisted methods of analysis, can aid in producing a certain level of confidence in the research results. This study was designed to provide a quantitative description of the relationships of the fathers in the study and their children with autism to fill a gap in the literature.

This study answered the research questions using a quantitative approach with a quasi-experimental design that explores the possible effects of the parent training experience on relationships between variables using statistical analyses documented with questionnaire instruments such as the FCDC (Ly & Goldberg, 2014).

Methodology

Mouton (2001) reviewed his research methodology as a means to focus on the research process and the kinds of tools and procedures that should be used in the collection and analysis of data. A well-established questionnaire was used as the research tool, which required the researcher to elicit information from the respondents. This process provided an insight into the relationship between fathers' involvement and APT. Scott and Usher (2011) asserted that while using the questionnaire method, the researcher should focus on participants who are similarly related. I used repeated measures with a convenience sampling of a target population of fathers who attended APT in a region of

the southeastern U.S. The researcher uses a separate one-way ANOVA for repeated measures for each of the dependent variables.

A priori power analysis was conducted using the software package G*Power (Faul & Erdfelder, 1992) to identify the minimum sample size. Each test of a research hypothesis involved a separate one-way ANOVA with repeated measures, with time as the independent variable and three points of measurement. With planning for assessment of within-subject changes across three points of measurement with a power of .95, alpha = .05, moderate effect size *f* = .25, two groups for the between-group comparison, one repeated measurements, correlation among repeated measures = .5, and nonsphericity correction = 1, the minimum total minimum sample size for analyses would be 43. Given the risk of participants dropping out prematurely or simply not completing the assessments, the planned minimum sample size was increased to 50.

Population and Sampling

Population

APTs are conducted across many sites within a services system in a state in the southeast U.S. At this time, there are approximately 3,000 families of children with ASD who receive services through this system. Of these, approximately 80% include fathers who are potential caretakers of the children. At any given time, there may be 11 sites that conduct APT training. Participation is voluntary.

Sampling

Because I am employed by the DDSN service system, the focus was in recruiting fathers who were not familiar with him, either by direct or indirect association. Eligible

participants were in-home or nonresidential fathers whose children have been determined eligible for state services for autism and reside in the region.

The trainings were scheduled to be held at 11 county Disability Boards. Members of the boards assisted the researcher in distributing information about the study. The plan was to send out research recruitment flyers to fathers eligible for this study in the 11 Disabilities Boards in the regions and particularly to case-managers of families with children living with ASD. This invited fathers to participate in the study on the experiences of fathers of children with ASD. They were also asked if they were planning to attend the next APT session. As it was not appropriate for the researcher to assign fathers to treatment, they had to rely on finding groups of fathers, some of whom planned to attend APT and some who would not by their own choice, to become the research participants. All volunteers for the study were informed that they would be asked to complete a questionnaire three times: at the beginning of the training, after the training, and 4 weeks later. Completion of all three times was emphasized as an important part of the study. Fathers were also given a return stamped envelope. I intended to follow up with the fathers in order to encourage them to return the responses to the questionnaire within a week, after the 30-day period.

I aimed to investigate the following questions:

RQ1: Are there changes in a father's stress because of participation in APT?

$H_0$1: A father's stress, as measured by the stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT.

H_a1: A father's stress, as measured by the stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does change because of his participation in APT.

RQ2: Are there changes in a father's coping strategies for stress because of his participation in APT?

$H_0 2$: A father's coping strategies for stress, as measured by the coping strategies for stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT.

$H_a 2$: A father's coping strategies for stress, as measured by the coping strategies for stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does change because of his participation in APT.

RQ3: Are there changes in a father's ideas about responsibility because of his participation in APT?

$H_0 3$: A father's idea about responsibility, as measured by the ideas about responsibility of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT.

$H_a 3$: A father's idea about responsibility, as measured by the ideas about responsibility of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does change because of his participation in APT.

RQ4: Are there changes in a father's ability to be involved because of his participation in APT?

$H_0$4: A father's ability to be involved, as measured by the Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT.

H_a4: A father's ability to be involved, as measured by the Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does change because of his participation in APT.

The Independent Variable

APT is a 1-day training class that provides information about how to set up programming for social and communication skills, makes participants practice using teaching techniques that work, and structures an approach for managing behavior challenges.

APT is designed to review the characteristics of autism and provide an overview of treatment strategies that are considered best practices. The purpose of the APT workshop is to describe the support that parents can demonstrate and apply effectively. This includes teaching strategies that relate to reinforcement, prompting, communication, and social intentions. The focus was to introduce antecedent strategies and positive behavior reduction strategies that can be implemented with simple environmental changes and low cost/no cost adaptations. The training is conducted by Autism Division staff and is three hours long. It is taught via PowerPoint and includes several activities.

Instrumentation

The FDCD is a 20-item measure yielding two subscales: (a) impact on parenting and (b) involvement with child intervention. The scale was developed to not only assess fathers' perceptions of father involvement as conceptualized by Lambs et al. (1985) but

also to measure the level of stress and other challenges faced by fathers when they are involved with their children. All items in the FCDC were worded to address the real challenges of parenting a child with developmental issues. The highest score indicates that fathers experienced greater support in being involved with their child. Each item was presented with a 5-point Likert scale, ranging from 1 (*Strongly Agree*) to 5 (*Strongly Disagree*), with higher scores indicating less impact on parenting. Analyses indicated that the FCDC is reliable ($\alpha = 0.89$), as did each of the two sub scales ($\alpha > 0.85$), which demonstrates content validity, construct validity and acts in theoretically expected ways. The measure has been found to offer adequate internal reliability. The overall scale was reported to demonstrate content and construct validity, supported by theoretical assumptions (Ly & Goldberg, 2014). When specific subscales of the FCDC and PSI were compared, the FCDC 'impact on parenting' subscale was found to be significantly associated with each one of the PSI subscales in both the child and parent domains (r-values ranging from -0.32 to -0.64).

Data Analysis

SPSS version 23 was used to analyze the data to test each of the research hypotheses by conducting a one-way ANOVA with repeated measures. The three repeated measures were conducted before and after APT training, then 30 days after the training. The dependent variables were the scale scores for each of the research hypotheses.

Prior to performing the one-way ANOVA with repeated measures, data were checked to ensure the required minimum amount of useable data to achieve planned power of analyses was available. Data were cleaned and screened (examined for data

entry errors, missing values, outliers, with adjustments made, as needed), and the dependent variables were examined to ensure that they met the assumptions for use of the ANOVA (i.e., continuous measures, normally distributed, with homogeneity of variances across experimental groups). If any dependent measures did not meet the normality assumption, even after transformations, nonparametric statistical analyses were used appropriately. Demographic characteristics of the sample were also computed and summarized for the final report.

Threats to Validity

There were several types of threats to the validity that could have interfered with the ability of the researcher to draw inferences from the data collected in the study. These threats included internal validity threats, external validity threats, conclusion validity threats, and construct validity threats. Even through the researcher planned to recruit more participants than required by the power analysis, the study posed a risk in being able to access an adequate number of fathers, as it relied on one form of data from one source, that is, the CDCQ (Ly & Goldberg, 2014). Threats can consist of having too much variation in data or outliers in data, having the wrong selection of samples, or using inaccurate measurement methods for analysis (Brinkman et al., 2009). According to Creswell (2003), ignoring such threats may lead to inaccurate results and an invalid study.

Minimizing Threats to Internal Validity

Testing

The use of a research design that does include a pretest may convey knowledge to the participants. This particular threat can either overstate or understate the program

effect. Therefore, I was on the lookout for such a threat and intended to report any findings in this regard.

Attrition

I aimed to recruit as many participants as possible to avoid the threat of attrition and ensure quality of the statistical analyses. I eliminated most instrumentation threats by maintaining control of the measurement procedures using a well-established instrument and following a data collection procedure outlined earlier.

Minimizing Threats to External Validity

Selection Bias

I planned to recruit fathers whose children have autism and who live in a region of the southeastern U.S. This would not allow the generalization of the study results across populations. All participants were volunteers, regardless of whether or not they chose to attend APT training. I was not aware if the participants differed from those who did not choose to be in the study and/or attend APT.

Ethical Procedures

Research involving human participants is subject to a number of ethical concerns. According to the APA (2016), The National Commission for the Protection of Human Subjects of Biomedical and Behavioral Research identified the basic ethical principles that should underlie the conduct of biomedical and behavioral research involving human subjects. The commission produces guidelines for the boundaries between biomedical and behavioral research, assessment of risk in research involving human subjects, methods for selecting human subjects for participation in research, and informed consent.

In the study, these concerns were limited, as the questionnaires were conducted confidentially. This eliminated the threat of disclosure of personal information. The organizational resource which the study planned to use required that a local human rights board review any study involving human participants. Furthermore, the resource also required an approved proposal from a University Institutional Review Board (IRB). Walden University IRB was responsible for making the final decisions with regard to what constitutes as research conducted on human subjects and how the human subject protection laws must be implemented. According to Walden University (2017), the University's IRB follows the guidelines of the Federal Policy for the Protection of Human Subjects. An application was submitted and approved (10-15-20-0232396) by Walden University IRB to conduct this study. All information relating to the participants and the result of the study was held in confidentiality, and all the collected data was housed at the researcher's office in a locked file cabinet. Study related information will be kept for 10 years, and after being reviewed by the SC-DDSN research and human right committee, the study-related information would be shredded.

Role of the Researcher

As an employee of AD, I conduct autism-specific training and behavioral consultation throughout the coastal region. To ensure that there was no impact to the collection of the data or any potential bias, I only recruited fathers unfamiliar to them for study and allowed colleagues to conduct the APT. This ensured the separation of work duties and research protocols, limiting any concerns about bias.

Summary

As the prevalence of ASD in American children has increased over the past decade, many local and state agencies are seeking avenues to become more efficient in the type of training services they offer. One such training is referred to as APT. This quantitative study used a quasi-experimental one-group design to explore possible changes across time related to participation in APT on fathers' self-reported stress, coping strategies for stress, ideas about responsibility, and ability to be involved in parenting their child(ren) with ASD. Participants were recruited from among fathers of children with ASD who signed up for APT. They were asked to complete the CDCQ (Ly & Goldberg, 2014) just prior to the training, at the end of the training, and then again 30 days after the training was completed. It was hypothesized that fathers would show improvement in stress, coping, ideas about responsibility, and their ability to be involved with their children as a function of participation in APT. This study aimed to expand the knowledge regarding the effects of APT as well as provide further information for ongoing development of interventions to enhance parental involvement by fathers of children with ASD.

Chapter 4: Data Analysis and Research Findings

Introduction

The goal of the study was to identify the relationship between APT participation and factors related to fathers' involvement with their children with autism. Fathers' experiences were assessed at three points: prior to the beginning of APT (Time 1), immediately following completion (Time 2), and 30 days after completion (Time 3). A sample 43 fathers (n = 43) was required. However, with the onset of the Covid-19 pandemic, the ability to recruit participant for the study became painstakingly difficult and the required sample size was not attained Only 9 fathers (n-9) was actually participated in all three data points . A One-way ANOVAs with repeated measures were used to assess change across the three points of measurement for each dependent variable and , a paired sample *t* test also was used to test Data Point 1 and 2, which provided a larger sample size of (n = 26), which could have produced the potential for a higher statistic power.

This chapter includes a description of the analysis of data followed by a discussion of the research findings. The findings relate to the research questions that guided the study. Data were analyzed to identify, describe and explore the relationship between paternal parent training and the involvement of father with children ASD. Data were obtained from self- administered questionnaires, completed by 26 fathers (n = 26). This may be because fathers completed the first and second questionnaire at the same day before and after the training session. The third data period was to be complete 30 days later. It was difficult to contact participants during and after the 30 day period, some even reported having Vovid-19 symptoms and covid-19 related issues. There was complete

Time 1, 2, and 3 data for nine participants, so data from Time 1 and Time 2 were also analysis to see if result may be different. However, results from both analyses were the same.

In term of the collection of data, one must take into account that the study was completed during the COVID-19 pandemic. Because the study is based on fathers who have children with special needs. As stated in the proposal, it was extremely important to access father who children were eligible for state funded services in South Carolina, as these children would have a proven diagnosis for ASD. Because of the pandemic many of the community based agencies statewide, who provide service to children with Special Needs, were closed. These agencies were to provide a resource for recruiting fathers. Nonetheless, in South Carolina all state office and facility was closed for several months, more than a thousand people who either work for or depend on the services of the South Carolina Department of Disabilities and Special Needs (DDSN) had tested positive for COVID-19. Unfortunately, these closure vastly affected my overall study and prevented the researcher from recruiting the full number of participate needed to have a significant affect. I am a DDSN employee and out of a total of 958 DDSN staff members who had been tested, 693 received positive test result. As a result of the enormous health risk associate with virus, recruitment of participant for study created the limitation of only having 9 participants who completed the entire study. However, overall, the study recruited 26 participants who completed Data Points 1 and 2.

Participants

As seen in Table 1, participants' age ranged from 25 to 60 years of age and older. The largest percentage of participants were 45-59 years of age (50%, $n = 13$) and the majority were Black (73.1%, $n = 19$). For marital status, the majority identified as "Married Dad to

biological mother" (38.5%, *n* = 10) or as "Single Dad, never married, full custody" (34.6%, *n* = 9). In terms of education, 14.8% (*n* = 4) had a college degree and 40.7% (*n* = 11) had vocational training. Demographic graphs are located in appendix G.

Table 1

Frequency and Percentages for Participants' Demographic Characteristics

Variable	*n*	%
Age		
60 years old or older	1	3.8
45–59 years old	13	50.0
35–44 years old	7	26.9
25–34 years old	5	19.2
Total	26	100.0
Race		
Black or African American	19	73.1
White	4	15.4
Hispanic, Latino, or Spanish origin	3	11.5
Total	26	100.0
Marital Status		
Single Dad, never married, full custody	9	34.6
Single Dad, never married, shared custody	2	7.7
Divorced Dad (separated from biological mother)	3	11.5
Widower Dad (mother died)	1	3.8
Married Dad to biological mother	10	38.5
Married Dad to another-mother	1	3.8
Total	26	100.0
Educational Level		
High school	5	22.2
Some high school or GED	6	22.2

Vocational Training (Mechanic, etc.)	11	40.7
College degree	4	14.8
Total	26	100.0

Data Analysis and Assumptions

SPSS version 27 was used to test each of the research hypotheses with one-way repeated measures ANOVAs. There were three repeated measures for each dependent variable as reflected in the research questions and hypotheses. Prior to performing the one-way ANOVA with repeated measures, data were checked to ensure that there is the required minimum amount of useable data for adequate statistical power. Data was cleaned and screened; no data entry errors were found. The dependent variables were assessed for the assumptions of repeated measures ANOVA (i.e., continuous measures, normally distribution, and sphericity).

Level of Measurement

For the first assumption, it is required that the dependent variable be measured at ratio/interval level or continuous. This assumption was met because the dependent variables were continuous.

Normal Distribution

The one-way repeated measures ANOVA is considered "robust" to violations of normality (Kline, 2015). For the assumptions of normality, the Kolmogorov-Smirnov test and the Shapiro-Wilks test were used. As seen in Table 2, no serious deviations from normality were identified. The variables were appropriate for repeated measures ANOVA.

Table 2

Kolmogorov-Smirnov and Shapiro-Wilk Tests for the Dependent Variables

	Kolmogorov-Smirnov			Shapiro-Wilk		
Dependent Variables	Statistic	*df*	*p*	Statistic	*df*	*p*
Time 1: Fathers' Stress	.210	9	.20	.96	9	.81
Time 2: Fathers' Stress	.183	9	.20	.96	9	.81
Time 3: Fathers' Stress	.183	9	.20	.93	9	.57
Time 1: Fathers' Coping Strategies	.209	9	.20	.82	9	.03
Time 2: Fathers' Coping Strategies	.226	9	.20	.91	9	.34
Time 3: Fathers' Coping Strategies	.224	9	.20	.94	9	.59
Time 1: Father's Ideas About Responsibility	.295	9	.12	.81	9	.03
Time 2: Father's Ideas About Responsibility	.199	9	.20	.89	9	.22
Time 3: Father's Ideas About Responsibility	.173	9	.20	.97	9	.89
Time 1: Fathers' Involvement	.295	9	.12	.78	9	.09
Time 2: Fathers' Involvement	.271	9	.06	.84	9	.06
Time 3: Fathers' Involvement	.231	9	.18	.93	9	.483

Assumptions of Sphericity *(e^)*

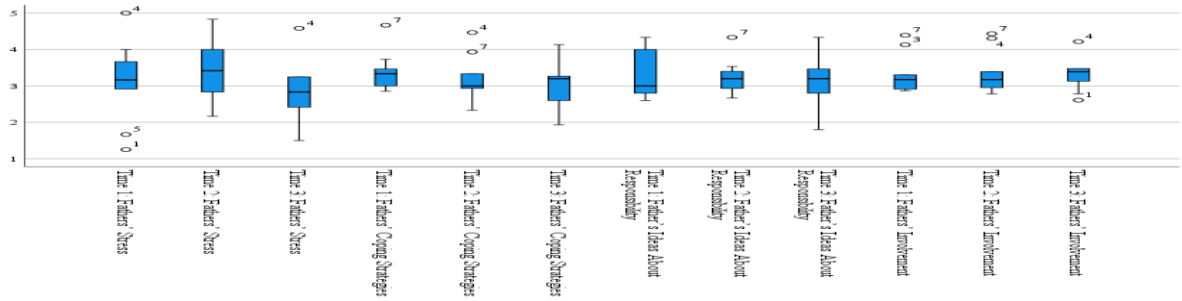
The assumption of sphericity refers to the equality of variances of the differences between treatment levels. Statistically significant values with $p < .05$ indicate this assumption has been violated. The variables of fathers' stress, fathers' coping strategies, father's ideas about responsibility, or fathers' involvement met the assumption of sphericity per Mauchly's test of sphericity, which was run as part of the repeated measures ANOVAs. More specifically, the Mauchly's test of sphericity for fathers' stress, fathers' coping strategies, father's ideas about responsibility, and fathers' involvement were not statistically significant; all were $p > .05$. As such, no adjustments were made to the data or the data analysis plan.

Assumption of Outliers

A boxplot was used to check the outliers. As seen in Figure 1, there were outliers in the dataset but none of the outliers were extreme or influential. As such, all the cases were retained for the subsequent analysis.

Figure 1

Boxplot for the Dependent Variables



Missingness

The data were assessed for missing data. As seen in Table 3, nine participants had data for Time 1, Time 2, and Time 3. As such, the study was under-powered.

Table 3

Missing Data Analysis for the Dependent Variables at Time 1, Time 2, and Time 3

Variable	*N*	Missing Data	
		Count	%
Time 1: Fathers' Stress	26	0	.0
Time 2: Fathers' Stress	26	0	.0
Time 3: Fathers' Stress	9	17	65.4
Time 1: Fathers' Coping Strategies	26	0	.0
Time 2: Fathers' Coping Strategies	26	0	.0
Time 3: Fathers' Coping Strategies	9	17	65.4
Time 1: Father's Ideas About Responsibility	26	0	.0
Time 2: Father's Ideas About Responsibility	26	0	.0
Time 3: Father's Ideas About Responsibility	9	17	65.4
Time 1: Fathers' Involvement	26	0	.0
Time 2: Fathers' Involvement	26	0	.0
Time 3: Fathers' Involvement	9	17	65.4

Reliability

The majority of dependent variables had adequate internal consistency and reliability as assessed with Cronbach's alpha. Alphas ranged from .49 to .92 (see Table 4). The reliability for fathers' coping strategies at Time 1 was .42. Removing items from the scale did not improve reliability. As such, the measure of fathers' coping strategies at Time 1 was used in the analysis. However, this is a possible limitation for interpretation of results.

Table 4

Cronbach's Alpha Values for the Dependent Variables

Variable	*# of items*	*Alpha*
Time 1: Fathers' Stress	12	.92
Time 2: Fathers' Stress	12	.81
Time 3: Fathers' Stress	12	.90
Time 1: Fathers' Coping Strategies	15	.49
Time 2: Fathers' Coping Strategies	15	.82
Time 3: Fathers' Coping Strategies	15	.88
Time 1: Father's Ideas About Responsibility	15	.80
Time 2: Father's Ideas About Responsibility	15	.74
Time 3: Father's Ideas About Responsibility	15	.86
Time 1: Fathers' Involvement	24	.73
Time 2: Fathers' Involvement	24	.76
Time 3: Fathers' Involvement	24	.80

Descriptive Statistics for the Dependent Variables

The descriptive statistics for Fathers' Stress, fathers' Coping Strategies, Fathers' ideas about Responsibilities, and Fathers' involvement for Time 1, 2 and 3 appear in Table 5.

Table 5

Descriptive Statistics for the Main Variables

	N	Minimum	Maximum	*M*	*SD*
Time 1: Fathers' Stress	26	1.25	5.00	3.11	0.98
Time 2: Fathers' Stress	26	2.17	4.83	3.13	0.68
Time 3: Fathers' Stress	9	1.50	4.58	2.75	0.92
Time 1: Fathers' Coping Strategies	26	2.40	4.67	3.20	0.51
Time 2: Fathers' Coping Strategies	26	2.00	4.47	3.04	0.56
Time 3: Fathers' Coping Strategies	9	1.93	4.13	3.00	0.61
Time 1: Father's Ideas About Responsibility	26	2.07	4.33	3.10	0.60
Time 2: Father's Ideas About Responsibility	26	2.3	4.3	3.06	0.48
Time 3: Father's Ideas About Responsibility	9	1.80	4.33	3.05	0.71
Time 1: Fathers' Involvement	26	2.65	4.39	3.19	0.41
Time 2: Fathers' Involvement	26	2.65	4.43	3.13	0.42
Time 3: Fathers' Involvement	9	2.61	4.22	3.28	0.46

Research Questions and Hypotheses

Research Question 1

A repeated measures ANOVA was used to test the hypothesis. Mauchly's test indicated that the sphericity assumption was met (x^2 (2) = 0.79, p = .44). The first repeated measures ANOVA was used to measure the main effect of time on fathers' stress scores. Results showed that there was no statistically significant effect of time on Fathers' Stress, $F(2, 7) = 3.06$, p = .06 (see Table 6). The differences between fathers' stress scores Time 1, 2, and 3 were not statistically significant. The means for this variable are presented in Figure 2. As such, the null hypothesis that a father's stress, as measured by the stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was rejected.

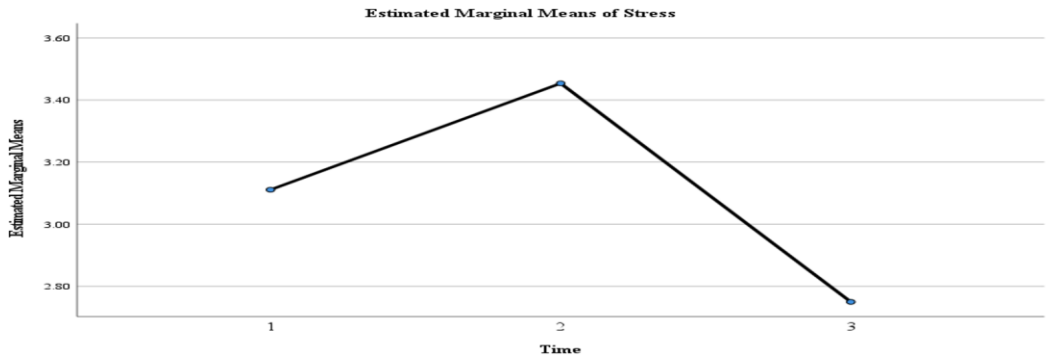
Table 6

Descriptive Statistics and F Statistic for Fathers' Stress Scores

	Stress 1		Stress 2		Stress 3				
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*df*	*F*	*p*
Stress (ANOVA)	3.11	1.13	3.45	0.88	2.75	0.92	(2, 7)	3.06	.06

Figure 2

Means for Fathers' Stress Scores at Time 1, Time 2, and Time 3



Research Question 2

A repeated measures ANOVA was used for interpreting the main effect of time on fathers' coping strategies for stress. Mauchly's test indicated that the sphericity assumption was met (x^2 (2) = 0.72, p = .32). The means for fathers' coping strategies for stress at Time 1, Time 2, and Time 3 are presented in Figure 3. Results indicated a lack of a statistically significant main effect of time on fathers' coping strategies for stress scores, F(2, 7) = 0.94, p = .40 (see Table 7). As such, the null hypothesis that a father's coping strategies for stress, as measured by the coping strategies for stress of Fathers of

Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was accepted.

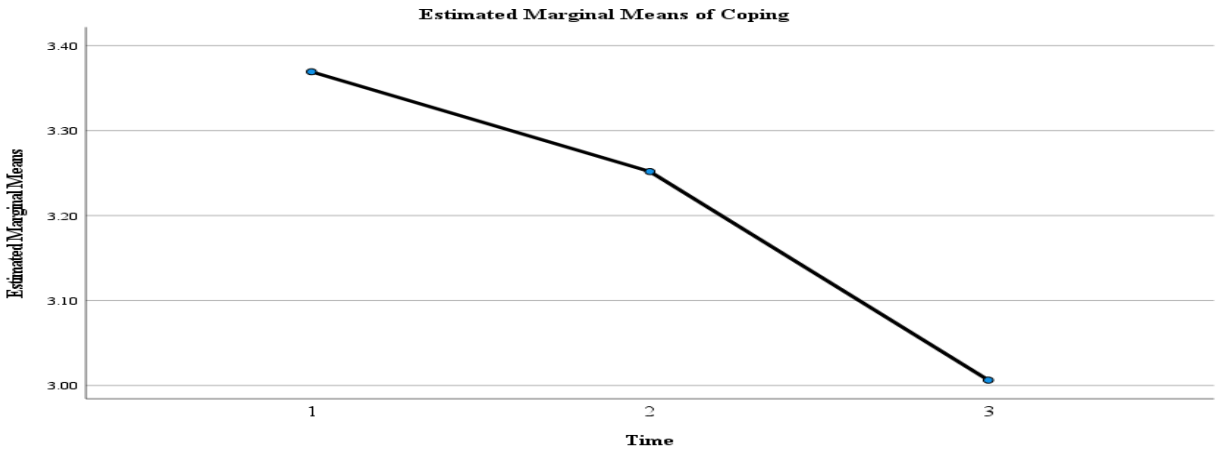
Table 7

Descriptive Statistics and F Statistic for Fathers' Coping Strategy Scores

	Coping 1		Coping 2		Coping 3				
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*df*	*F*	*p*
Coping (ANOVA)	3.36	0.56	3.25	0.62	3.00	0.61	(2, 7)	0.94	.40

Figure 3

Means for Fathers' Coping Strategy Scores at Time 1, Time 2, and Time 3



Research Question 3

A repeated measures ANOVA was used for interpreting the main effect of time on fathers' idea about responsibility scores for Time 1, Time 2, and Time 3. Mauchly's test indicated that the sphericity assumption was met (x^2 (2) = 0.67, p = .25). The means for father's idea about responsibility for Time 1, Time 2, and Time 3 are presented in

Figure 4. Results showed that the main effect of time on fathers' ideas about responsibility was not statistically significant $F(2, 7) = 0.36$, $p = .69$ (see Table 8). As such, the null hypothesis that a father's idea about responsibility, as measured by the ideas about responsibility of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was accepted.

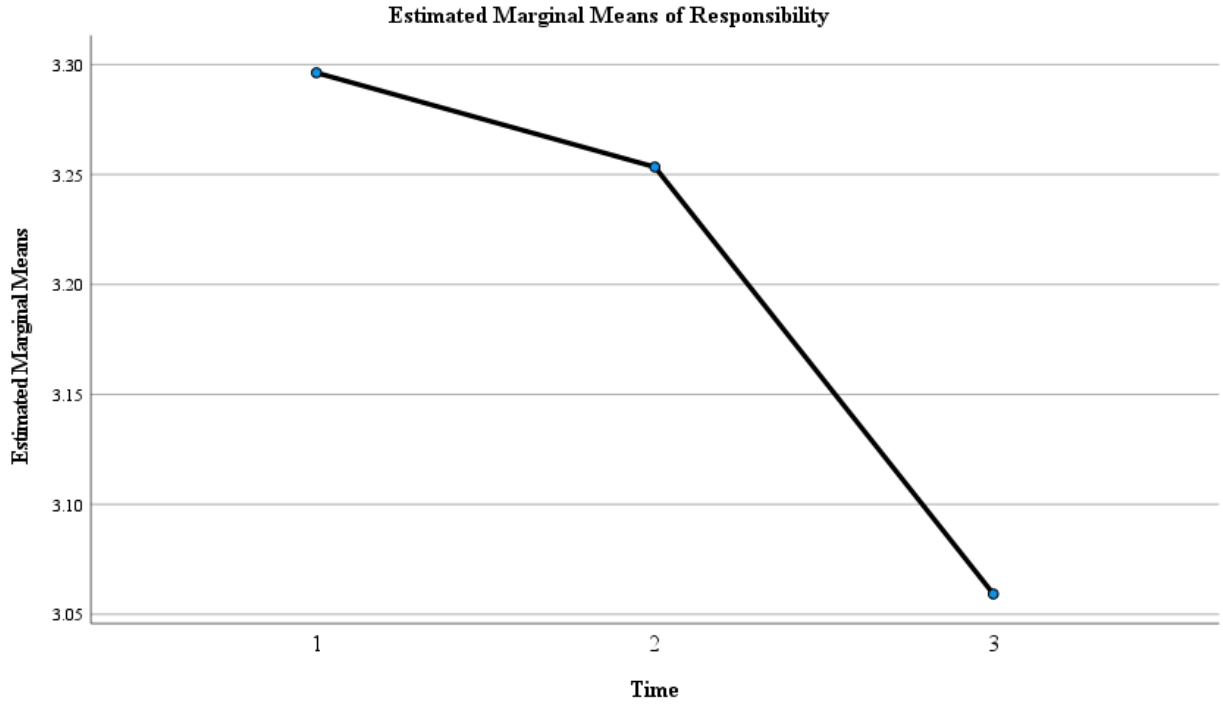
Table 8

Descriptive Statistics and F Statistic for Fathers' Ideas About Responsibilities Scores

	Ideas About Responsibilities 1		Ideas About Responsibilities 2		Ideas About Responsibilities 3				
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*df*	*F*	*p*
Ideas About Responsibilities (ANOVA)	3.29	0.69	3.25	0.48	3.05	0.71	(2, 7)	0.36	.69

Figure 4

Means for Fathers' Ideas About Responsibilities Scores at Time 1, Time 2, and Time 3



Research Question 4

A repeated measures ANOVA was used for interpreting the main effect of time on father's ability to be involved. Mauchly's test indicated that the sphericity assumption was violated (x^2 (2) = 0.80, p = .46). The means for fathers' ability to be involved at Time 1, Time 2, and Time 3 are presented in Figure 5. Results showed that there was statistically significant effect of time on father's ability to be involved scores, F(2, 7) = 0.09, p = .91 (see Table 9). As such, the null hypothesis that a father's ability to be involved, as measured by the Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was accepted.

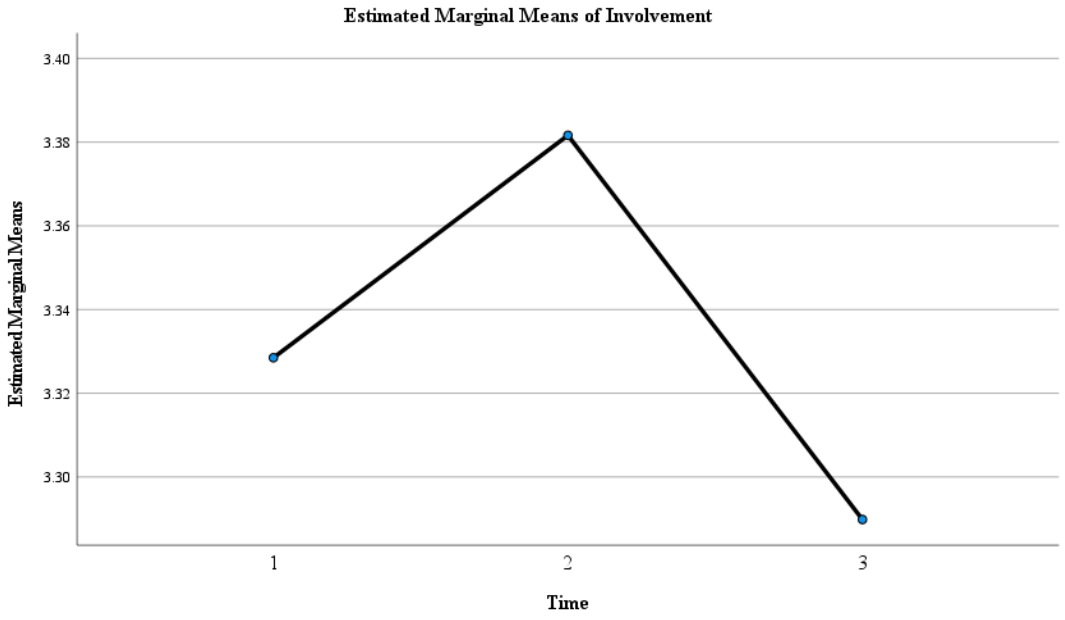
Table 9

Descriptive Statistics and F Statistic for Fathers' Ability to be Involved Scores

	Father's Ability to be Involved 1		Father's Ability to be Involved 2		Father's Ability to be Involved 3				
Variable	*M*	*SD*	*M*	*SD*	*M*	*SD*	*df*	*F*	*p*
Father's Ability to be Involved (ANOVA)	3.32	0.55	3.38	0.59	3.28	0.46	(2, 7)	0.09	.91

Figure 5

Means for Fathers' Ability to be Involved Scores at Time 1, Time 2, and Time 3



Results Summary

Repeated measures ANOVAs were used to test the four research questions and corresponding hypotheses. The dependent variables met the assumptions for level of measurement, normal distribution, lack of influential outliers, and sphericity as required for repeated measures ANOVA. All of the variables had adequate reliability with the exception of fathers' coping strategies at Time 1 ($\alpha = .42$.).

The null hypotheses were not accepted for Research Question 1, Research Question 2, Research Question 3, and Research Question 4. There was no main effect of time for any of the dependent variables as measured at Time 1, Time 2, and Time 3. The null hypothesis that a father's stress, as measured by the stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was accepted. The null hypothesis that a father's coping strategies for stress, as measured by the coping strategies for stress of Fathers of Children with

Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was accepted. The null hypothesis that a father's idea about responsibility, as measured by the ideas about responsibility of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was accepted. Finally, the null hypothesis that a father's ability to be involved, as measured by the Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was accepted. The APT did not lead to any statistically significant changes in fathers' stress, fathers' coping strategies, father's ideas about responsibility, or fathers' involvement.

Paired *t* Tests Analysis

There were significant problems with the validity of the repeated measures ANOVAs due to the much smaller number of participants who completed the survey at Time 3. Problems exist due to reduced statistical power, but also the possible representativeness of those who remained for the third assessment. Because of these limitations, paired *t*-tests were employed to compare Times 1 and 2 where there were more suitable sample sizes in order to assess the relationship between APT participation and factors related to fathers' involvement with their children with autism.

Data Analysis and Assumptions

Similar to the assessments for the repeated measures ANOVA, data met the assumptions for the paired *t*-tests: continuous level of measurement, normal distribution/outliers, and sphericity. However, the sample size (n = 26) reduced the power of the statistical test.

Assumption of Outliers

A boxplot was used to check the outliers. As seen in Figure 1, there were outliers in the dataset but none of the outliers were extreme or influential. As such, all the cases were retained for the subsequent analysis.

Missingness

The data were assessed for missing data. As the study had only 26 participants had data for Time 1 and Time 2. As such, the study was under-powered.

Reliability

The majority of dependent variables had adequate internal consistency and reliability as assessed with Cronbach's alpha. Alphas ranged from .49 to .92. The reliability for fathers' coping strategies at Time 1 was .42. Removing items from the scale did not improve reliability. As such, the measure of fathers' coping strategies at Time 1 was used in the analysis. However, as noted earlier, this is a possible limitation for interpretation of results.

Research Questions and Hypotheses

Research Question 1

A paired *t* test was used to examine the difference between Time 1 and Time 2 stress scores. The average Time 1 Stress Score was 13.11 (*SD* = 0.98) and the average Time 2 Stress Score was 3.13 (*SD* = 0.58) indicating a mean difference of 0.02. However, the difference between the Time 1 and Time 2 stress scores was not statistically significant ($t(25) = -0.08$, $p > .05$). As such, the null hypothesis that a father's stress, as measured by the stress of FCDC Questionnaire, does not change because of his participation in APT was accepted.

Research Question 2

A paired *t* test was used to examine the difference between Time 1 and Time 2 coping scores. The average Time 1 Coping Score was 3.20 (*SD* = 0.51) and the average Time 2 Coping Score was 3.04 (*SD* = 0.56) indicating a mean difference of 0.16. However, the difference between the Time 1 and Time 2 coping scores was not statistically significant ($t(25) = 1.47$, $p > .05$). As such, the null hypothesis that a father's coping strategies for stress, as measured by the coping strategies for stress of Fathers of Children with Developmental Challenges (FCDC) Questionnaire, does not change because of his participation in APT was accepted.

Research Question 3

A paired *t* test was used to examine the difference between fathers' ideas about responsibility at Time 1 and Time 2. The average Time 1 score for fathers' ideas about responsibility was 3.01 (*SD* = 0.60) and the average Time 2 score for fathers' ideas about responsibility was 3.06 (*SD* = 0.48) indicating a mean difference of 0.04. The difference between fathers' ideas about responsibility Time 1 and Time 2 scores was not statistically significant ($t(25) = 0.47$, $p > .05$). As such, the null hypothesis that a father's idea about responsibility, as measured by the ideas about responsibility of FCDC Questionnaire, does not change because of his participation in APT was accepted.

Research Question 4

A paired *t* test was used to examine the difference between fathers' ability to be involved at Time 1 and Time 2. The average Time 1 score for fathers' ability to be involved was 3.19 (*SD* = 0.41) and the average Time 2 score for fathers' ability to be involved was 3.13 (*SD* = 0.42) indicating a mean difference of 0.06. The difference

between fathers' ability to be involved at Time 1 and Time 2 was not statistically significant ($t(25) = 1.02$, $p > .05$). As such, the null hypothesis that a father's ability to be involved, as measured by the FCDC Questionnaire, does not change because of his participation in APT was accepted.

Summary

Paired *t* tests were used to test the four research questions and corresponding hypotheses. The dependent variables met the assumptions for level of measurement, normal distribution, lack of influential outliers, and sphericity as required. All of the variables had adequate reliability with the exception of fathers' coping strategies at Time 1 ($\alpha = .42$.).

The null hypothesis was not rejected for Research Question 1, Research Question 2, Research Question 3, and Research Question 4. There was no main effect of time for any of the dependent variables as measured at Time 1 and Time 2. The null hypothesis that a father's stress, as measured by the stress of FCDC Questionnaire, does not change because of his participation in APT was accepted. The null hypothesis that a father's coping strategies for stress, as measured by the coping strategies for stress of FCDC Questionnaire, does not change because of his participation in APT was accepted. the null hypothesis that a father's idea about responsibility, as measured by the ideas about responsibility of FCDC Questionnaire, does not change because of his participation in APT was accepted. Finally, the null hypothesis that a father's ability to be involved, as measured by the FCDC Questionnaire, does not change because of his participation in APT was accepted. The APT did not lead to any statistically significant changes in

fathers' stress, fathers' coping strategies, father's ideas about responsibility, or fathers' involvement.

Chapter 5: Summary and Conclusions

Introduction

This chapter is a summary of the research findings, discusses the limitations, and reflects the recommendations of the study. I evaluated the effects of APT training on father involvement behavior, as well as affective and attitudinal factors that may be related to involvement behaviors. A repeated measures design was used to evaluate the dependent variables among a group of fathers who attended APT training. In order to evaluate possible change across time, a father was evaluated prior to beginning training, at the end of the training, and 30 days after training has ended. Using the FCDCQ (Ly & Goldberg, 2014) scale, I assessed four critical factors that are rated to fathers' involvement: overall feelings of stress, coping strategies for dealing with stress, ability to be involved with their children, and ideas about being responsible for the care of their children. The goal of the study was to evaluate effects of the training program across these behavioral, affective, and attitudinal components of father involvement.

The review of literature clarified the importance of training for parents of children with ASD as a part of early intervention services. Moreover, the review of literature also suggest that mothers usually take on the bulk of task relating to implementation of ASD treatment strategies and that fathers need to be more involved in ASD treatment. The review of literature suggests that parents can provide more consistent treatment interventions for their children than service providers, as parents spend more time, overall, with their children.

Method of Data Collection

I assessed the research questions through a quantitative approach with a within-subject (time of assessment) comparison of scores that are reported at different points (pre, post, and post post). I explored differences across time on father's self-reported stress levels, coping ability with stress, sense of responsibility, ability to be involved (FCDDQ; Ly & Goldberg, 2014).

The collection of data was done to all of the subscales three times: just prior to the APT training, at the end of the training, and 30 days after the end of the training. I assessed the research hypotheses by using repeated measures ANOVA to evaluate each of the four research hypotheses. I recruited 26 overall participants; but, only nine completed all three data points. In response to the small sample size over the three data points, a Paired *t* test was conduct with the 26 participant that completed data point one and two. Nonetheless, the study was conducted in amidst of the Covid-19 pandemic and had to be modified. If the study was carried out in its original format and was able to recruit the recommended sample size of 43 ($n = 43$), it may have provided a more of an in-depth insight into the experiences of fathers and may have provided further knowledge about specific benefits of APT in affect a father's involvement with his child(ren) with ASD.

Finding

The literature review provides overwhelming evidence of the overall benefit of parent training and how father's involvement is critical in a child's overall development.

In terms of ASD, it is clear that fathers must be more involved in caregiving because of the preponderance of the literature asserting that mothers are over stressed, as they deal with the majority of the aberrant behaviors exhibited by children with ASD. Furthermore, it has been established in the review of the literature that parent mediated intervention may provide parents with the techniques needed to address problematic behaviors. The ability to apply these techniques at home with the assistance of a professional may correlate with a reduction of stress for the mother, especially when mothers are in a supportive co-parenting relationship. According to the literature review, parent training can also be a cost-effective means to treat ASD.

The review of literature suggested the benefit of parent training on father involvement but no study clearly defines the effect of APT on father involvement in terms of level of fathers' stress, coping strategies, their ideas about father involvement, and their ideas about responsibility. Because of the resulting limitations of the study due to COVID-19 in regards to planning procedures, the required sample sizes at all 3 data collection points was never achieved. It is very possible that the study sample size and modified designed played a critical role in the overall result. In addition, the low internal reliability of an assessment tool for Time 1 also puts the reliability of the findings of this study in question. The duplication of the study with the proper construct and design may produce a more robust result and may provide knowledge regarding father involvement which the review of literature view concludes has a gap of knowledge.

Repeated measures ANOVAs

Repeated measures ANOVAs were used to test the four research questions and corresponding hypotheses. The dependent variables met the assumptions for level of

measurement, normal distribution, lack of influential outliers, and sphericity as required for repeated measures ANOVA. All of the variables had adequate reliability with the exception of fathers' coping strategies at Time 1 ($\alpha = .42$.).

The null hypotheses were accepted for Research Question 1, Research Question 2, Research Question 3, and Research Question 4. There was no main effect of time for any of the dependent variables as measured at Time 1, Time 2, and Time 3. The null hypothesis that a father's stress, as measured by the stress of FCDC Questionnaire, does not change because of his participation in APT was accepted. The null hypothesis that a father's coping strategies for stress, as measured by the coping strategies for stress of FCDC Questionnaire, does not change because of his participation in APT was accepted. The null hypothesis that a father's idea about responsibility, as measured by the ideas about responsibility of FCDC Questionnaire, does not change because of his participation in APT was accepted. Finally, the null hypothesis that a father's ability to be involved, as measured by the FCDC Questionnaire, does not change because of his participation in APT was accepted. The APT did not lead to any statistically significant changes in fathers' stress, fathers' coping strategies, father's ideas about responsibility, or fathers' involvement.

However, these results are not reliable because of the low number of respondents who remained to provide data for Time 3. Not only did this sample size negatively affect the robustness of this analysis, but the fathers who remained may not have been representative of the full group.

Paired *t* Tests

Because of the limitations of applying the repeated one-way ANOVA to data where there was such a low number of responses for Time 3, paired *t* tests were used to test the four research questions and corresponding hypotheses based on the samples for Times 1 and 2. The dependent variables met the assumptions for level of measurement, normal distribution, lack of influential outliers, and sphericity as required. All of the variables had adequate reliability with the exception of fathers' coping strategies at Time 1 ($\alpha = .42.$).

The null hypotheses were not accepted for Research Question 1, Research Question 2, Research Question 3, and Research Question 4. There was no main effect of time for any of the dependent variables as measured at Time 1 and Time 2. The null hypothesis that a father's stress, as measured by the stress of FCDC Questionnaire, does not change because of his participation in APT was accepted. The null hypothesis that a father's coping strategies for stress, as measured by the coping strategies for stress of FCDC Questionnaire, does not change because of his participation in APT was accepted. the null hypothesis that a father's idea about responsibility, as measured by the ideas about responsibility of FCDC Questionnaire, does not change because of his participation in APT was accepted. Finally, the null hypothesis that a father's ability to be involved, as measured by the FCDC Questionnaire, does not change because of his participation in APT was accepted. The APT did not lead to any statistically significant changes in fathers' stress, fathers' coping strategies, father's ideas about responsibility, or fathers' involvement.

Limitation

The size of the sample was limited because of a six month time limitation and the covid-19 pandemic. Many of the community partners who were to be used in recruiting participant was closed due to the pandemic, so recruiting participants was moved to online and via word of mouth. Moreover, the researcher is a DDSN employee and out of a total of 958 DDSN staff members who had been tested, 693 received positive test result. As a result there was enormous health risk associate with recruitment.

The original power analysis while planning this study suggested a minimum of 42 participants: however, I only was able to recruit 26 participants in the limited time-framed allotted. Secondly, the training aspect of the study was also moved online because of the corvid-19 pandemic. The participant viewed a short YouTube video produced by the South Carolina Department of Disabilities. The original training was proposed to be four hours and in person. Thus, another possible limitation to the training itself was the shift to the virtual alternative. Therefore, the null hypotheses were rejected for Research Questions, but under the original methodology presented, the study results could have varied dramatically.

Recommendations and Implications

The review of literature clarifies the importance of training for parents of children with ASD as a part of early intervention services. The review of literature also suggests that mothers usually take on the bulk of the tasks relating to implementation of ASD treatment strategies and that fathers need to be more involved in ASD treatment. Bagner (2013) asserted that traditional study on parent training fails to include fathers'

involvement. Because there is limited research that has been done on autism parent training and fathers' involvement, it is recommended that this evaluation be considered for future study, specifically because of the study limitation posed by the covid-19 pandemic. Studies regarding factors that address father involvement is warranted, especially fathers with children with disabilities. This study highlights the gap in knowledge regarding support for father involvement and children with ASD, a critical area for positive social change.

Conclusion

This chapter concluded the study and discussed the findings. I experienced a number of limitations while attempting to explore an issue that needs to be addressed, father involvement with children with ASD. The theoretical framework of the study is the social learning theory, which suggests that learning and social behavior are inter-connected variables that are developed through observation and imitation. The social learning theory by Bandura (1963) hypothesized that learning can be produced through direct instruction and without reward or compensation. The study had a number of limitations with respect to the number of participants and the actual unexpected change of the nature of the training activities. In all reality, the study's findings did not offer a viable evaluation of the effects of variables because of its limitations. However, it did made an attempt to bring fathers together under a common family dynamic and a conceptual theory to explore the relationship between father involvement and autism parent training.

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Appendix A: Research Announcement

CALL FOR RESEARCH PARTICIPANTS!

MAKE YOUR OPINION COUNT!

Fathers of children who have been made eligible for state autism services and are willing to attended Autism Parent training are needed! Looking to find out what impact autism parent training has had on how you raise children with autism! If you decide to participate, you will be required to sign a consent form, attend APT, and complete a questionnaire before the training, after the training, and 30 days after the training. Volunteers will fill out a questionnaire in English.

Appendix B: Participation in Research

Exploring the Relationships between Autism Parent Training and Fathers' Parental Involvement

Why am I being asked? You are being asked to be a participant in a research study about "Exploring Father Involvement Factors Impacting Fathers' Participation in Autism Training" to provide information regarding the relationship between fathers' involvement and APT. The overall goal of this study is to improve treatment success. Ray Brown, a Psychology student at Walden University, who is seeking a doctoral degree in Educational Psychology, is conducting this research study. You have been asked to participate in this research because you have attended autism parent training and may wish to share your information on account of attending training. We ask that you read this form and ask any questions you may have before agreeing to participate in the research.

Your participation in this research is voluntary. Your decision whether or not to participate will not affect your current or future relations with Walden University or any agency or individual who is providing treatment to you and/or your child. If you decide to participate, you are free to withdraw at any time without affecting these relationships.

What is the Purpose of this Research?

This research study will be able to gather information, by using a questionnaire, about a father's perspective when raising a child with autism spectrum disorder (ASD), specifically to understand how easy or hard it is to do so, and a father's understandings of their role with a child who has ASD. The questionnaire is easy to fill out and takes only about 10 minutes to complete.

What procedures are involved?

If you agree to be in this research, we would ask you to do the following things:

- Read the consent form provided
- Complete the questionnaire provided
- Return the questionnaire to the researcher by mail or email.

Furthermore, approximately 32 participants may be involved in this research.

What are the potential risks and discomforts?

Risks and discomforts expected for you during this study are minimal. You may experience a small amount of emotional distress if, when answering certain questions, you are reminded of the difficult life experiences. If so, you can choose not to answer these questions. You can also call the Emotional Distress Hotline, a national mental health hotline, available 24/7 for free, at1-800-LIFENET.

Are there benefits to taking part in the research?

There is the benefit of knowing that your experiences will affect and benefit others in the future. However, there are no direct benefits to you, the participant, from this study at this time.

What about privacy and confidentiality?

No one will know that you are a research subject other than the researcher, because none of the information about you or provided by you during the research will ever be disclosed to others. When the results of the research are published or discussed in conferences, no information will be included that could ever reveal your identity.

Will I be reimbursed for any of my expenses or paid for my participation in this research?

There will be no payments, no reimbursements, and no incentives for participation in this study.

Can I withdraw from the study?

It is your choice whether to be in this study or not. If you volunteer to be in this study, you may withdraw at any time without any consequences. You may also refuse to answer any questions you do not want to answer and still participate in the study.

Whom should I contact if I have questions?

The researcher conducting this study is Ray Brown. You may ask any questions you have now to him You may also contact the researcher's thesis adviser, Dr. Rolande Murray PhD, at rmurray@waldenu.edu.

What are my rights as a research subject?

If you feel you have not been treated according to the descriptions in this form or you have any questions about your rights as a research subject, you may contact the Institutional Review Board (IRB) at Walden University through the following representative:

Appendix C: Fathers of Children with Developmental Challenges (FCDC) Questionnaire

The 20 items primarily addressed the psychological and cultural/institutional factors identified as contributors to stress and predictors of involvement among fathers (Lamb et al., 1987; Pleck, 2012). Furthermore, cognitions about fathering have been increasingly included into research (Pleck, 2007), thus items tapping into feelings and thoughts about fatherhood were included. Given that the acceptance of the child's DC has been shown to be uniquely associated with fathers' family experiences (Keller & Honig 2004), seven of the 20 items concerned this topic. The remaining 13 items were distributed among the topics of competence in the parenting role and therapy-related involvement. Hence, it was anticipated that the FCDC would consist of three factors that would be specific to fathers' experiences: acceptability of the child's diagnosis, parenting competence, and acknowledgement by service providers, but only two factors (i.e., two sub-scales) were later confirmed (see Results). All items in the FCDC were worded to reflect the context of raising children with DCs (see Table 1 and Appendix 1 for the full list of items). Participants indicated their agreement with each item as it generally applied to them on a scale ranging from one (strongly agree) to five (strongly disagree). Items were scored such that higher total scores indicated that fathers experienced greater supports to their involvement with their child. For the fathers who were not able to attend at least one educational or therapy-related meeting, a list was compiled of possible reasons why they did not attend it. Reasons were drawn from the same process as item generation. Fathers were selected from the list with respect to all the reasons that applied to them (see Table 4 for the full list of reasons).

Appendix D: Demographic Graphs